

REMARKS

I. Status of Claims

Claims 35-68 are pending.

Herein, claim 63 has been amended to improve the grammar of the claim by deleting the non-essential term "additional." Claim 64 has been amended to correspond to the claims of the PCT application as originally filed by adding the clause "consisting of." The claims, as amended, are supported by the specification, including the original claims as-filed and, thus, no new matter has been added.

II. Section 112 Rejection

The Office rejects claims 63-65 under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons provided at page 2 of the Office Action. Applicants respectfully disagree. The additional layer of claim 63 is not necessarily an extension of the second elastomeric material, as recited in claim 64 and evidenced in Figures 5, 6, and 6A. Rather, one skilled in the art would recognize the metes and bounds of the claim, where the layer is a separate and distinct layer. Accordingly, Applicants respectfully submit that the Office's rejection should be withdrawn.

III. Section 103 Rejections

A. The Office rejects claims 35-44, 56-58, 60, and 61 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. 02-249707 to Ohashi ("Ohashi"), for the reasons provided at pages 2-4 of the Office Action. Applicants respectfully disagree.

With respect to obviousness, several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Office to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and
- (4) Evaluate evidence of secondary considerations.

The obviousness or nonobviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. at 467; see also *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1730, 82 U.S.P.Q.2d 1385, 1388 (2007).

According to the Office, “[w]hile the reference fails to expressly disclose the respective compressive moduli, one of ordinary skill in the art at the time of the invention would have expected the disclosed elastomeric materials of Ohashi to satisfy the claimed compressive modulus relationship...” See Office Action at 3. The Office asserts, “a composition designed to improve abrasion resistance and having a greater modulus of elasticity (as compared to an additional composition) would be expected to demonstrate a greater hardness.” *Id.*

Applicants disagree with the Office’s characterization of Ohashi and its relevance to the claimed invention. Ohashi does not render the claimed invention obvious since Ohashi is directed to solving a different problem and relies upon a set of parameters unrelated to the claimed parameters.

- modulus of elasticity limitation

The Office concedes that Ohashi failed to disclose the compressive modulus. Yet, the Office assumes that the Ohashi dynamic modulus of elasticity measured at room temperature would have the same compressive modulus relationship. Just because both Ohashi and the Applicants considered modulus of elasticity values does not mean or suggest that "one skilled in the art would expect the elastomeric materials of Ohashi to satisfy the claimed compressive modulus relationship. . ." See Office Action at 3. This Office's assumption does not withstand scrutiny.

There is no evidence that the claimed tires are inherently disclosed by Ohashi. According to the M.P.E.P., "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P. § 2112 (citation omitted). Indeed the M.P.E.P. advises that "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Id.* (citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)).

First, Ohashi and the Applicants looked at modulus values under very different conditions, room temperature versus 100 °C, because they were concerned with very different issues. As stated in Ohashi's abstract, the purpose its invention was to improve resistance to wear and, accordingly, Ohashi looked to modulus of elasticity at room temperature and identified a correlation between resistance to wear and room temperature properties.

In contrast, the claimed invention is directed to "improved performance in terms of road holding and handling, in particular of those performances related to tire behavior when drifting, braking, and accelerating." Specification-as-filed at p.2. In other words, Applicants' invention is concerned with "UHP (Ultra High Performance)" tires and the need to overcome the degradation that occurs when the tire is subjected to "high thermal-mechanical stress." *Id.* at pp. 1-2. Accordingly, Applicants focused upon tire properties at elevated temperatures (where high thermal-mechanical stress is expected), such as modulus of elasticity under compression at 100°C, and identified a different correlation between high performance properties and elevated temperature properties. With such significant differences in temperature, there is little that one of skill in the art can conclude from the data of Ohashi with respect to the properties claimed by Applicants. In fact, one cannot infer anything regarding the values at 100°C, since modulus of elasticity varies according to temperature and varies in a different manner depending upon the elastomeric material.

Second, Ohashi was concerned only with differences in the absolute values of his measurements, whereas Applicants discovered that it was the ratio of values, i.e., relative differences that were important. Specifically, Ohashi tested the dynamic modulus of elasticity at room temperature and found that dynamic modulus of elasticity E'1 needs to be 60-140 kgf/cm², that E'2 needs to be 110-190 kgf/cm², and that the value of E'2 minus the value of E'1 needs to be within the range of 10-90 kgf/cm². Ohashi at pg 2, ll. 23-31. Thus, according to Ohashi, the result-effective variables to solve its stated problem is the absolute values at room temperature of E'1 and E'2 and the difference between the absolute values of E'1 and E'2. In contrast, Applicants

discovered the ratio between the modulus of elasticity under compression at 100°C of the two elastomeric materials to be a result-effective variable. One skilled in the art reading Ohashi simply would not recognize the ratio as providing improved performance for road holding and handling, in particular for drifting, accelerating, and braking.

Third, the data of Ohashi does not permit one skilled in the art to make any inference regarding the ratio between the modulus of elasticity of the second elastomeric material and the modulus of elasticity of the first elastomeric material, whether at room temperature or at 100°C. Ohashi discloses several embodiments and compositions in Table 2, providing room temperature elasticity values of the central and peripheral portion rubber type. Even if one made ratio calculations based on the provided data, there is no apparent pattern that can be discerned from these ratio calculations regarding the suitability of elastomeric combinations at room temperature and certainly not at 100 °C. Further, one could not infer from this data that an elasticity ratio of not lower than 1.3 would offer improved properties. In fact, one could not conclude from Ohashi whether the appropriate ratio values should be lower than or higher than 1.3.

Fourth, given the inadequate disclosure of Ohashi, it would also be improper to conclude that one skilled in the art could optimize the modulus of elasticity values. M.P.E.P. § 2144.05(II)(B) dictates that “[a] particular parameter must first be recognized as a result-effective variable . . . before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” (Citing *In re Antonie*, 559 F.2d 618, 195 U.S.P.Q. 6 (C.C.P.A. 1977) (emphasis added)). Here, there is no evidence that the prior art appreciated the importance of (1) modulus of elasticity

under compression at 100°C or (2) the ratio of these moduli. Without such evidence, the Office's suggestion that Applicants must establish the criticality of the claimed relationship (Office Action at 3) is unfounded and improper. *See* M.P.E.P. § 2144.05(II)(A) and (B).

For this reason alone, one skilled in the art would never have arrived at the claimed invention, and, thus, Ohashi does not render the claims obvious and the rejection should be withdrawn.

- hardness limitation

Surprisingly, the Office states that one of skill in the art would expect a positive relationship between hardness and elasticity and, thus, one would have expected the second elastomeric material to have a greater hardness, as compared to the first elastomeric material. This assumption does not withstand scrutiny and is not supported by any of the cited prior art.

First, the alleged correlation between the hardness and elasticity is not generally recognized and accepted in the rubber art. According to a textbook with a publishing date prior to the filing date of Ohashi, the hardness test can be useful only roughly and it cannot give sufficient information about the modulus. *Manuale Della Gomma ("Rubber Manual")*, *Tecniche Nuove*, Italian edition 1987, first German edition 1981, pg 231-234 (attached herewith an English translation of full third paragraph p. 234). This means that the hardness and modulus are considered in the art to be so unrelated that the hardness can not give sufficient information about the modulus and visa versa. The hardness and compressive modulus are different parameters related to different properties of a rubber material. The hardness is a measure of an elastomer's response

on a small scale superficial level while compressive modulus is a measure of an elastomer's response to large stresses of the entire elastomeric part at a macroscopic or bulk level. A person of skill in the art would understand these distinctions and would not expect the alleged correlation.

Furthermore, the difference in temperatures between the present invention and Ohashi contradicts the argument that one skilled in the art would expect such a correlation between the hardness and elasticity. In fact, one cannot presume that if polymer 1 has a greater hardness than polymer 2 at room temperature, that polymer 1 will have a greater hardness than polymer 2 at 100 °C.

Second, as with the modulus of elasticity, Ohashi does not recognize the ratio of hardness values as a result-effective variable and the abrasion data of Tables 1 and 2 does not permit one skilled in the art to make any inference regarding the ratio any hardness measurements, whether at room temperature or at 100°C.. Further, one could not infer from this data that a hardness ratio of lower than about 1.10 would offer improved properties. One skilled in the art reading Ohashi simply would not recognize the ratio as providing improved performance for road holding and handling, in particular for drifting, accelerating, and braking.

Third, even assuming that Ohashi does suggest a ratio between the modulus of elasticity of 1.3 at 100°C and a positive relationship between the elasticity and hardness at 100°C, which we do not concede for reasons outlined above, one of skill in the art would have then expected both the elasticity and hardness to increase or decrease concurrently. In other words, if this were true, one of skill in the art when observing that the modulus of elasticity ratio is greater than 1.3 would have assumed that the ratio of

hardness would be similarly improved by an increase in the ratio. Instead, the present invention states that the modulus of elasticity ratio is greater than 1.3 while the IRHD hardness ratio is lower than 1.1. If the statement made by the Office that a positive relationship between elasticity and hardness were true, then the lack of a positive correlation in the present invention would evidence that the invention is not obvious.

Thus, while the Office asserts that one of skill in the art "would have expected" the elasticity to have the disclosed ratio and the hardness "would be expected" to be greater for the second material, the Office has failed to show how Ohashi's purported elasticity and hardness must *necessarily* fall within the range recited in Applicants' independent claim 35. In fact, Applicants have demonstrated how these properties would have not been expected to be inherent and do not fall within the range recited.

For at least these reasons, Ohashi fails to inherently disclose or render obvious all of the subject matter recited in independent claim 35. Further, claims 36-68 depend from independent claim 35 and should be patentably distinguishable from Ohashi for at least the same reasons as independent claim 35. Therefore, Applicants respectfully request reconsideration and withdrawal of the § 103(a) rejection of claims 35-68 based on Ohashi.

B. The Examiner rejects claims 45, 46, and 50-55 under 35 U.S.C. § 103(a) as being unpatentable over Ohashi in view of US Patent No. 5,006,603 to Takaki ("Takaki"), for the reasons provided at pages 5-6 of the Office Action. Applicants respectfully disagree.

Since claims 45, 46, and 50-55 depend from claim 35, which is not obvious over Ohashi for the reasons provided above, Applicants submit that claims 45, 46, and 50 are also not obvious over Ohashi and that Takaki does not correct this deficiency. Accordingly, this rejection is also improper and should be withdrawn

C. The Examiner rejects claims 47-49 under 35 U.S.C. § 103(a) as being unpatentable over Ohashi in view of US Patent No. 6,598,645 to Larson ("Larson"), for the reasons provided at pages 6-7 of the Office Action. Applicants respectfully disagree.

Since claims 47-49 depend from claim 35, which is not obvious over Ohashi for the reasons provided above, Applicants submit that claims 47-49 are also not obvious over Ohashi and that Larson does not correct this deficiency. Accordingly, this rejection is also improper and should be withdrawn.

D. The Examiner rejects claims 35, 59, and 62-68 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. 53080602 to Fukuda ("Fukuda") and Ohashi, for the reasons provided at pages 7-9 of the Office Action. Applicants respectfully disagree.

While Fukuda may disclose a tire wherein the second elastomeric material provides higher wear resistance than the first elastomeric material, the Office has not established that the compositions of Fukuda are comparable to the compositions of Ohashi. Nevertheless, even assuming the Office is correct about Fukuda, such

evidence is insufficient to establish obviousness (whether alone or with Ohashi for substantially the same reasons provided above.

Accordingly, this rejection is also improper and should be withdrawn.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

If the Examiner believes a telephone conference could be useful in resolving any outstanding issues, she is respectfully invited to contact Applicant's undersigned counsel at (202) 408-4275.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Attachments: Translation of JP 02-249707

Manuale Della Gomma ("Rubber Manual"), Tecniche Nuove, Italian edition 1987, first German edition 1981, pg 231-234

English translation of full third paragraph p. 234.